Where:

Wco2=CO_2 emitted from combustion, tons/day.

MW_c=Molecular weight of carbon (12.0).

MW_{o2}=Molecular weight of oxygen (32.0)

W_C=Carbon burned, lb/day, determined using fuel sampling and analysis and fuel feed rates. Collect at least one fuel sample during each week that the unit combusts coal or oil, one sample per each shipment for diesel fuel, and one fuel sample each month the unit combusts gaseous fuels. Collect coal samples from a location in the fuel handling system that provides a sample representative of the fuel bunkered or consumed during the week. Determine the carbon content of each fuel sampling using one of the following methods: ASTM D3178–89 for coal; ASTM D5291–92 ''Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants,'' ultimate analysis of oil, or computations based upon ASTM D3238–90 and either ASTM D2502–87 or ASTM D2503–82 (Reapproved 1987) for oil; and computations based on ASTM D1945–91 or ASTM D1946–90 for gas. Use daily fuel feed rates from company records for all fuels and the carbon content of the most recent fuel sample under this section to determine tons of carbon per day from combustion of each fuel. (All ASTM methods are incorporated by reference under §75.6). Where more than one fuel is combusted during a calendar day, calculate total tons of carbon for the day from all fuels.

2.2 For an affected coal-fired unit, the estimate of daily CO_2 mass emissions given by Equation G–1 may be adjusted to account for carbon retained in the ash using the procedures in either section 2.2.1 through 2.2.3 or section 2.2.4 of this appendix.

2.2.1 Determine the ash content of the weekly sample of coal using ASTM D3174–89 ''Standard Test Method for Ash in the Analysis Sample of Coal and Coke From Coal'' (incorporated by reference under §75.6 of this part).

2.2.2 Sample and analyze the carbon content of the fly-ash according to ASTM D3178–89, ''Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke'' (incorporated by reference under §75.6 of this part).

2.2.3 Discount the estimate of daily CO_2 mass emissions from the combustion of coal given by Equation G–1 by the percent carbon retained in the ash using the following equation:

$$W_{NCO2} = W_{CO2} - \left(\frac{MW_{CO2}}{MW_c}\right)\left(\frac{A\%}{100}\right)\left(\frac{C\%}{100}\right)W_{COAL}$$

where,

W_{NCO2} = Net CO_2 mass emissions discharged to the atmosphere, tons/day.

W_{CO2} = Daily CO_2 mass emissions calculated by Equation G–1, tons/day.

MW_{C02} = Molecular weight of carbon dioxide (44.0).

MW_c = Molecular weight of carbon (12.0).

A% = Ash content of the coal sample, percent by weight.

C% = Carbon content of ash, percent by weight.

W_{COAL} = Feed rate of coal from company records, tons/day.

2.2.4 The daily CO_2 mass emissions from combusting coal may be adjusted to account for carbon retained in the ash using the following equation:

W_{NCO2} = .99 W_{CO2}
(Eq. G–3)

where,

W_{NCO2} = Net CO_2 mass emissions from the combustion of coal discharged to the atmosphere, tons/day.

.99 = Average fraction of coal converted into CO_2 upon combustion.

W_{CO2} = Daily CO_2 mass emissions from the combustion of coal calculated by Equation G–1, tons/day.

2.3 In lieu of using the procedures, methods, and equations in section 2.1 of this appendix, the owner or operator of an affected gas-fired unit as defined under §72.2 of this chapter may use the following equation and records of hourly heat input to estimate hourly CO_2 mass emissions (in tons).

$$W_{CO_2} = \left(\frac{F_C \times H \times U_f \times MW_{CO_2}}{2000}\right) \qquad \text{(Eq. G–4)}$$

(Eq.G–4)

Where:

WCO_2=CO_2 emitted from combustion, tons/hr.

Fc=Carbon-based F-factor, 1,040 scf/mmBtu for natural gas; 1,420 scf/mm/btu for crude, residual, or distillate oil.